Remarks

This response is intended as a full and complete response to the final Office Action mailed January 26, 2005. In the Office Action, the Examiner notes that claims 1-9 are pending of which claims 1-6 are allowed and claims 7-9 are rejected. By this response, claims 7 and 8 are amended. The amendments to the claims are fully supported by the Specification and claims as originally filed. For example, the amendments to claim 7 are supported generally by the entire Specification, and specifically at least by page 7, lines 12-29. The amendments to claim 8 are supported at least by claim 1 as originally filed and by the Specification at page 6, lines 8-20. Thus, no new matter has been introduced and the Examiner is respectfully requested to enter the amendments to the claims.

In view of both the amendments presented above and the following discussion, the Applicant submits that none of the claims now pending in the application are anticipated under the provisions of 35 U.S.C. §102. Thus, the Applicant believes that all of these claims are now in allowable form.

It is to be understood that the Applicant, by amending the claims, does not acquiesce to the Examiner's characterizations of the art of record or to the Applicant's subject matter recited in the pending claims. Further, the Applicant is not acquiescing to the Examiner's statements as to the applicability of the art of record to the pending claims by filing the instant responsive amendments.

ALLOWABLE SUBJECT MATTER

The Applicant thanks the Examiner for the allowance of claims 1-6.

REJECTIONS

Rejections of claims under 35 U.S.C. § 102

Claims 7-9 are rejected under 35 U.S. C. §102(e) as being anticipated by U.S. Patent Application Publication Number 2002/0031134 published March 14, 2002 to Poletto et al. (hereinafter Poletto).

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Claim 7

The Applicant's claim 7 recites (emphasis added below):

> "7.   A method for thwarting coordinated SYN denial of service (CSDoS) attacks against a server S disposed in a network of interconnected elements communicating using the TCP protocol, said attack originating from a malicious host generating SYN packets destined for said server, said method comprising the steps of
>
> arranging a switch receiving said SYN packets destined to said server to forward said SYN packets to a TCP proxy arranged to operate without an associated cache,
>
> wherein said TCP proxy does not establish a TCP connection, corresponding to a particular SYN packet, with said server until it receives a SYN/ACK packet, corresponding to the particular SYN packet, from said malicious host generating SYN packets."

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). The Poletto reference fails to disclose each and every element of the claimed invention, as arranged in the claim.

Specifically, the Poletto reference fails to teach or suggest at least the "wherein said TCP proxy does not establish a TCP connection, corresponding to a particular SYN packet, with said server until it receives a SYN/ACK packet, corresponding to the particular SYN packet, from said malicious host generating SYN packets" as recited in the claim as amended.

Poletto discloses "a system architecture for thwarting denial of service attacks on a victim data center" (abstract). Specifically, the system of Poletto responds to a TCP SYN flood attack as disclosed below (emphasis added):

> "[0062] Referring to FIG. 10, in an active configuration, a gateway 26 can defend against SYN flood attacks. During connection setup, the gateway forwards 102 a SYN packet from a client to a server. The gateway forwards 104 a resulting SYN ACK packet from a server to client and immediately sends 106 ACK packet to the server, closing a three-way handshake. The gateway maintains the resulting connection for a timeout period 108. If the ACK packet

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> does not arrive from client to server 110, the gateway sends 112 a
> RST ("reset") to the server to close the connection. If the ACK
> arrives 114, gateway forwards 116 the ACK and forgets 118 about
> the connection, forwarding subsequent packets for that connection.
> A variable timeout 120 period can be used. The variable time out
> period can be inversely proportional to number of connections for
> which a first ACK packet from client has not been received. If
> gateway 26 is placed inline in the network, when number of non-
> ACK'ed connections reaches a configurable threshold 122, the
> gateway will not forward any new SYNs until it finishes sending
> RSTs for those connections." (paragraph 62)

Thus, as can be seen in the above-recited section, the gateway of Poletto automatically forwards the SYN packet from the client to the server. Only after an ACK packet does not arrive at the gateway, after waiting for a timeout period, does the gateway reset the TCP connection to the server. Therefore Poletto does not teach or suggest not establishing a TCP connection with the server until a SYN/ACK packet is received from the host (i.e. client) generating SYN packets.

As such, the Applicant submits that independent claim 7 is not anticipated and fully satisfies the requirements under 35 U.S.C. § 102 and is patentable thereunder. Therefore, the Applicant respectfully requests that the rejection be withdrawn.

Claim 8

The Applicant's claim 8 recites (emphasis added below):

> "8.   A method for thwarting coordinated SYN denial of service
> (CSDOS) attacks against a server S disposed in a network of
> interconnected elements communicating using the TCP protocol,
> comprising the steps of
>   forwarding a statistical sampling of packets from a switch in
> said network to a processor,
>   if packets in said sampling indicate an attack against said
> server, altering the operation of said switch to forward all packets
> destined for said server to said processor."

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing Connell v. Sears, Roebuck & Co. , 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis

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added). The Poletto reference fails to disclose <u>each and every element</u> of the claimed invention, <u>as arranged</u> in the claim.

Specifically, the Poletto reference fails to teach or suggest at least the "if packets in said sampling indicate an attack against said server, <u>altering the operation of said switch to forward all packets destined for said server to said processor</u>" as recited in the claim as amended.

Poletto discloses "a system architecture for thwarting denial of service attacks on a victim data center" (abstract). However, as acknowledged by the Examiner, "the prior art of record does not explicitly teach controlling a network switch to divert a predetermined fraction of SYN packets destined for a server, to a web guard processor, and if after monitoring the timed-out connections exceeds a predetermined threshold, controlling the switch to divert <u>all</u> SYN packets destined to said server to said web guard processor" (page2, item no. 2, allowable subject matter). It is believed that the relevant limitations of claim 8 are substantially similar to the limitations allowable limitations of claim 1, as indicated by the Examiner.

As such, the Applicant submits that independent claim 8 is not anticipated and fully satisfies the requirements under 35 U.S.C. § 102 and is patentable thereunder. Furthermore, claim 9 depends directly from independent claim 8 and recites additional limitations thereof. As such, and for at least the same reasons discussed above, the Applicant submits that this dependent claims also fully satisfies the requirements under 35 U.S.C. §102 and is patentable thereunder. Therefore, the Applicant respectfully requests that the rejection be withdrawn.

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CONCLUSION

Thus, the Applicant submits that claims 7-9 are in condition for allowance. Furthermore, the specification and Abstract has been amended as requested by the Examiner. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

_3/24/05_

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